What is Claimed is:

1. A combined engine for a single-stage spacecraft, comprising an air intake section, an engine main body section including a combustion chamber, and an exhaust nozzle section, in this order, wherein rocket engines that inject the engine exhaust flows as rocket jets into said combustion chamber are arranged on struts that partition said air intake section into a plurality of air introduction channels.

2. The combined engine for a single-stage spacecraft according to claim 1, wherein said combustion chamber comprises a jet and airflow coexisting section in which both said rocket jets and airflows introduced through said air introduction channels are present, a mixing section in which said rocket jets and said airflows are mixed to form mixed gas, and a combustion section in which said mixed gas is burnt.

3. The combined engine for a single-stage spacecraft according to claim 2, wherein each flow rate of said airflows is controlled by varying the air channel area of said airflow immediately upstream of said mixing section by varying the shape of said rocket jets.

4. The combined engine for a single-stage spacecraft according to claim 2, wherein said air intake section comprises an equivalent function to a variable shape air

intake section required for a Brayton cycle engine in supersonic or ultra-supersonic flight by varying the shape of said rocket jets.

5. The combined engine for a single-stage spacecraft according to claim 2, wherein said mixing section and said combustion section have an equivalent function to a variable shape diffuser required for a Brayton cycle engine in supersonic or ultra-supersonic flight by varying the shape of said rocket jets.

6. The combined engine for a single-stage spacecraft according to claim 5, wherein, the necessary combustion pressure is secured by the mixture mainly with the pressure of said rocket jets in order to secure the operation of said combined engine at ultra-supersonic flight speeds of flight Mach number 12 or more.

7. The combined engine for a single-stage spacecraft according to claim 5, wherein, the necessary combustion pressure is secured by controlling generation of oblique shock waves caused by development of boundary layers accompanying perspiration cooling in said mixing section and said combustion section.

8. The combined engine for a single-stage spacecraft according to claim 2, wherein changing the combustion chamber

pressure of said rocket engines changes the shape of said rocket jets.

9. The combined engine for a single-stage spacecraft according to claim 2, wherein the air/fuel flow rate ratio in said mixing section is controlled by altering the equivalent ratio of oxidizer and fuel in the combustion chamber of said rocket engines.

10. The combined engine for a single-stage spacecraft according to claim 2, wherein the exhaust gas of said rocket engines works as a huge flame holder simultaneously as a huge igniter for said air/fuel combustion chamber.

11. The combined engine for a single-stage spacecraft according to claim 2, wherein said rocket jets generate Mach disks upstream of said mixing section in a subsonic or supersonic flight speed region.

12. The combined engine for a single-stage spacecraft according to claim 1, wherein the engine performance required by the given fuselage design is secured by providing a number of said rocket engines that satisfies the thrust requirements from take-off from the runway up to Earth orbit.